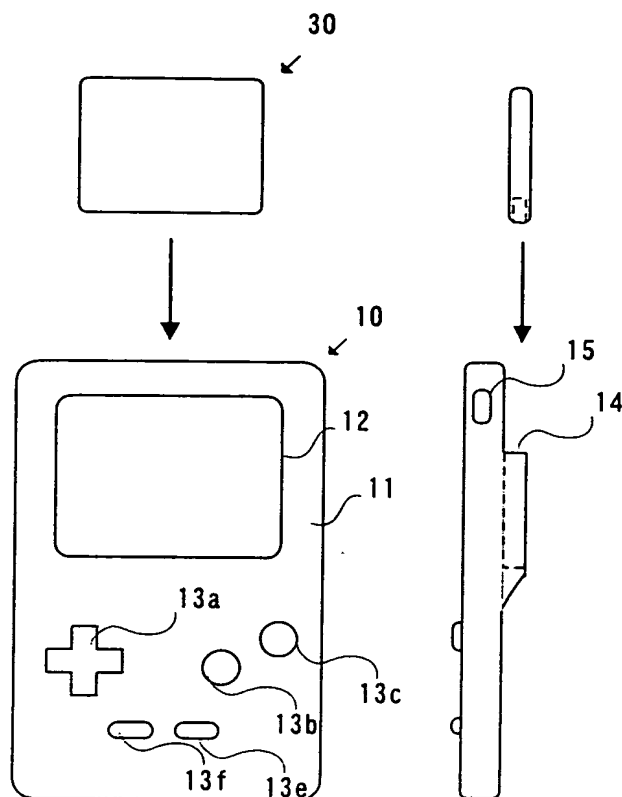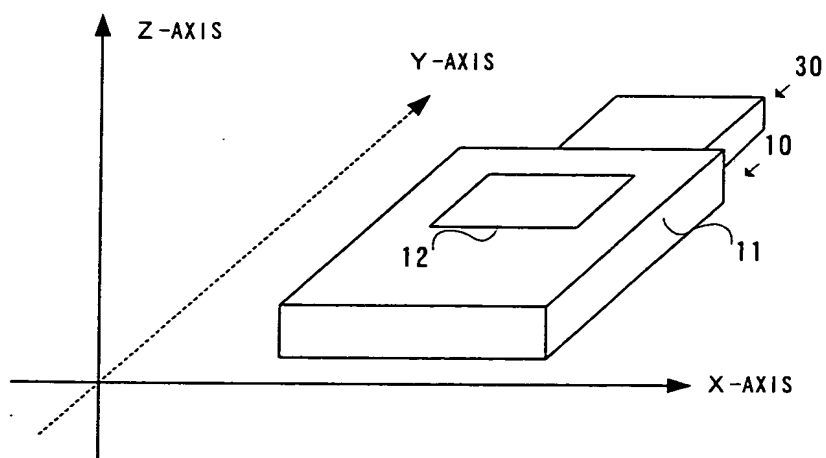FIG. 1

FIG. 2

FIG. 3

FIG. 4

Z-AXIS CONTACT SWITCH — 32

33

X-AXIS OUTPUT

XY-AXIS ACCELERATION SENSOR — 31

Y-AXIS OUTPUT

X COUNTER — 331

COUNT STOP CIRCUIT — 333

Y COUNTER — 332

LATCH — 334

LATCH — 335

COUNTER START/RESET

DECODER — 336

GENERAL-PURPOSE I/O PORT — 337

Φ   ADDRESS   /RD   /WR   DATA BUS

FIG. 5

Φ SIGNAL

SENSOR X-AXIS OUTPUT

SENSOR Y-AXIS OUTPUT

COUNTER START SIGNAL

X-COUNT

Y-COUNT

PERIOD 1

PERIOD 2

PERIOD 3

FIG. 6

SIDE VIEW

_32_

36

322

321

323

X-AXIS
DIRECTION

324a   324

TOP VIEW

36

321

322a   323a

322   324   323

FIG. 7

36

322   323

321

324

FIG. 8

FIG. 9

Y-AXIS

X-AXIS
+ DIRECTION

X-AXIS
- DIRECTION

X-AXIS

Y-AXIS
+ DIRECTION

Y-AXIS
- DIRECTION

FIG. 10

Y-AXIS

Y-AXIS
+ DIRECTION

Y-AXIS
- DIRECTION

X-AXIS
- DIRECTION

X-AXIS
+ DIRECTION

X-AXIS

FIG. 11

Y-AXIS

X-AXIS
+ DIRECTION

X-AXIS
- DIRECTION

X-AXIS

Y-AXIS
- DIRECTION

Y-AXIS
+ DIRECTION

FIG. 12

Z-AXIS

+ DIRECTION

- DIRECTION

FIG. 13

VIRTUAL MAP

SLIDE

FIG. 14

FIG. 15

IMPACT INPUT

WAVES

FIG. 16

PROGRAM ROM

OBJECT CHARACTER DATA	34a

MAP DATA	34b

ACCELERATION SENSOR OUTPUT CONVERSION TABLE

RECOMMENDED POSITION SET TABLE

GAME MAP SELECT TABLE

PLAYER CHARACTER MOVING TABLE

| IN-AIR TABLE |
| ON-FLOOR TABLE |
| ON-ICE TABLE |
| UNDERWATER TABLE |

NPC MOVING TABLE

| NORMAL POSITION TABLE |
| UPSIDE-DOWN POSITION TABLE |

34c

GAME PROGRAM

| MAIN PROGRAM |
| OG SET PROGRAM |
| NEUTRAL POSITION SET PROGRAM |
| RECOMMENDED POSITION SET PROGRAM |
| GAME MAP SELECT PROGRAM |
| SENSOR OUTPUT READ PROGRAM |
| OBJECT MOVING PROGRAM |
| COLLISION PROGRAM |
| SCREEN SCROLLING PROGRAM |
| NPC SELF-CONTROL MOVEMENT PROGRAM |
| OTHER PROGRAMS |

34e

FIG. 17

WORK RAM

NEUTRAL POSITION DATA

| NEUTRAL POSITION DATA X (N P x) |
| NEUTRAL POSITION DATA Y (N P y) |
| NEUTRAL POSITION DATA Z (N P z) |

~26a

ACCELERATION SENSOR OUTPUT VALUES

| ACCELERATION SENSOR OUTPUT X (I N x) |
| ACCELERATION SENSOR OUTPUT Y (I N y) |
| Z-AXIS CONTACT SWITCH OUTPUT VALUE (I N z) |

~26b

IMPACT INPUT FLAG

| IMPACT INPUT FLAG (F S) |

~26c

CAMERA COORDINATES OF MAP SELECT SCENE

| CAMERA X COORDINATE (C x) |
| CAMERA Y COORDINATE (C y) |

~26e

GAME MAP NUMBER

| GAME MAP NUMBER (M N) |

~26f

CHARACTER 1

| X MOVING ACCELERATION (A x) |
| Y MOVING ACCELERATION (A y) |
| Z MOVING ACCELERATION (A z) |

| X MOVING ACCELERATION CHANGE AMOUNT (d A x) |
| Y MOVING ACCELERATION CHANGE AMOUNT (d A y) |
| Z MOVING ACCELERATION CHANGE AMOUNT (d A z) |

| X VELOCITY (V x) |
| Y VELOCITY (V y) |
| Z VELOCITY (V z) |

| X COORDINATE (X) |
| Y COORDINATE (Y) |
| Z COORDINATE (Z) |

| LAST-TIME X COORDINATE (P x) |
| LAST-TIME Y COORDINATE (P y) |
| LAST-TIME Z COORDINATE (P z) |

| CURRENT POSITION STATUS (S P) |

| POSE NUMBER (P N) |

~26g1

CHARACTER 2   ~26g1

CHARACTER 3   ~26g1

CHARACTER ·   ~26g ·
. . .

FIG. 18

DISPLAY RAM

OBJECT DATA	
OBJECT X COORDINATE	25a
OBJECT Y COORDINATE	
OBJECT CHARACTER ID	
OBJECT POSE NUMBER	

SCROLL COUNTER DATA	
SCROLL COUNTER X COORDINATE (SCx)	25b
SCROLL COUNTER Y COORDINATE (SCy)	

MAP DATA	25c

FIG. 19

BACKUP RAM

OG POSITION DATA	
OG POSITION DATA X (ZGx)	35
OG POSITION DATA Y (ZGy)	

FIG. 20

GAME MAP SELECT PROCESSING TABLE

	UTILIZATION METHOD	CORRECTION RATIO	PARTICULAR CORRECTION CONDITION 1	PARTICULAR CORRECTION NUMBER 1	PARTICULAR CORRECTION CONDITION 2	PARTICULAR CORRECTION NUMBER 2
SENSOR OUTOUT VALUE X(INx)	CHANGE AMOUNT OF CAMERA X COORDINATE (Cx)	× 2	—	—	—	—
SENSOR OUTPUT VALUE Y(INy)	CHANGE AMOUNT OF CAMERA Y COORDINATE (Cy)	× 2	—	—	—	—
Z-AXIS CONTACT SW OUTPUT VALUE (INz)	MAP DECISION	—	—	—	—	—
IMPACT INPUT FLAG (FS)	—	—	—	—	—	—

FIG. 21

PLAYER CHARACTER MOVING TABLE (IN-AIR)

	UTILIZATION METHOD	CORRECTION RATIO	PARTICULAR CORRECTION CONDITION 1	PARTICULAR CORRECTION NUMBER 1	PARTICULAR CORRECTION CONDITION 2	PARTICULAR CORRECTION NUMBER 2
SENSOR OUTOUT VALUE X(INx)	—	—	—	—	—	—
SENSOR OUTPUT VALUE Y(INy)	—	—	—	—	—	—
Z-AXIS CONTACT SW OUTPUT VALUE (INz)	CHANGE AMOUNT OF Z MOVING ACCELERATION (dAz)	× 1	—	—	—	—
IMPACT INPUT FLAG (FS)	—	—	—	—	—	—

FIG. 22

PLAYER CHARACTER MOVING TABLE (ON-FLOOR)

	UTILIZATION METHOD	CORRECTION RATIO	PARTICULAR CORRECTION CONDITION 1	PARTICULAR CORRECTION NUMBER 1	PARTICULAR CORRECTION CONDITION 2	PARTICULAR CORRECTION NUMBER 2
SENSOR OUTOUT VALUE X(INx)	CHANGE AMOUNT OF X MOVING ACCELERATION (dAx)	×2	Inx>20	40	—	—
SENSOR OUTPUT VALUE Y(INy)	CHANGE AMOUNT OF Y MOVING ACCELERATION (dAy)	×2	Iny>20	40	—	—
Z-AXIS CONTACT SW OUTPUT VALUE (INz)	CHANGE AMOUNT OF Z MOVING ACCELERATION (dAz)	×1	—	—	—	—
IMPACT INPUT FLAG (FS)	CHANGE AMOUNT OF XY MOVING ACCELERATION (dAx, dAy)	×3	—	—	—	—

FIG. 23

PLAYER CHARACTER MOVING TABLE (ON-ICE)

	UTILIZATION METHOD	CORRECTION RATIO	PARTICULAR CORRECTION CONDITION 1	PARTICULAR CORRECTION NUMBER 1	PARTICULAR CORRECTION CONDITION 2	PARTICULAR CORRECTION NUMBER 2
SENSOR OUTOUT VALUE X(INx)	CHANGE AMOUNT OF X MOVING ACCELERATION (dAx)	×3	Inx>20	60	—	—
SENSOR OUTPUT VALUE Y(INy)	CHANGE AMOUNT OF Y MOVING ACCELERATION (dAy)	×3	Iny>20	60	—	—
Z-AXIS CONTACT SW OUTPUT VALUE (INz)	CHANGE AMOUNT OF Z MOVING ACCELERATION (dAz)	×1	—	—	—	—
IMPACT INPUT FLAG (FS)	CHANGE AMOUNT OF Z MOVING ACCELERATION (dAz)	×5	—	—	—	—

FIG. 24

PLAYER CHARACTER MOVING TABLE (UNDERWATER)

	UTILIZATION METHOD	CORRECTION RATIO	PARTICULAR CORRECTION CONDITION 1	PARTICULAR CORRECTION NUMBER 1	PARTICULAR CORRECTION CONDITION 2	PARTICULAR CORRECTION NUMBER 2
SENSOR OUTOUT VALUE X(INx)	CHANGE AMOUNT OF X MOVING ACCELERATION (dAx)	×1／2	Inx>20	60	—	—
SENSOR OUTPUT VALUE Y(INy)	CHANGE AMOUNT OF Y MOVING ACCELERATION (dAy)	×1／2	Iny>20	60	—	—
Z-AXIS CONTACT SW OUTPUT VALUE (INz)	CHANGE AMOUNT OF Z MOVING ACCELERATION (dAz)	×1	—	—	—	—
IMPACT INPUT FLAG (FS)	—	—	—	—	—	—

FIG. 25

NPC MOVING TABLE (FOR TORTOISE NORMAL POSITION)

	UTILIZATION METHOD	CORRECTION RATIO	PARTICULAR CORRECTION CONDITION 1	PARTICULAR CORRECTION NUMBER 1	PARTICULAR CORRECTION CONDITION 2	PARTICULAR CORRECTION NUMBER 2
SENSOR OUTOUT VALUE X(INx)	CHANGE AMOUNT OF X MOVING ACCELERATION (dAx)	×1／2	Inx<10	0	Inx>20	10
SENSOR OUTPUT VALUE Y(INy)	CHANGE AMOUNT OF Y MOVING ACCELERATION (dAy)	×1／2	Iny<10	0	Iny>20	10
Z-AXIS CONTACT SW OUTPUT VALUE (INz)	POSITION INVERSION	—	—	—	—	—
IMPACT INPUT FLAG (FS)	—	—	—	—	—	—

FIG. 26

NPC MOVING TABLE (FOR TORTOISE UPSIDE-DOWN POSITION)

	UTILIZATION METHOD	CORRECTION RATIO	PARTICULAR CORRECTION CONDITION 1	PARTICULAR CORRECTION NUMBER 1	PARTICULAR CORRECTION CONDITION 2	PARTICULAR CORRECTION NUMBER 2
SENSOR OUTOUT VALUE X(INx)	CHANGE AMOUNT OF X MOVING ACCELERATION (dAx)	× 2	Inx>20	40	—	
SENSOR OUTPUT VALUE Y(INy)	CHANGE AMOUNT OF Y MOVING ACCELERATION (dAy)	× 1	Iny>20	40	—	—
Z-AXIS CONTACT SW OUTPUT VALUE (INz)	POSITION INVERSION	—	—	—	—	—
IMPACT INPUT FLAG (FS)	—	—	—	—	—	—

FIG. 27

```
                    ( GAME START )
                          |
                          | ___ S11
                    / FIRST START OR \  Yes
                    \ OG SET REQUEST ? / -------> [ OG SET PROCESS ]  ___ S12
                          |  No                        |
                          | <---------------------------
                          | Yes
                    [ NEUTRAL POSITION SET ]  ___ S14
                    [      PROCESS         ]
                          |
                    [ GAME MAP SELECT ]  ___ S17
                    [    PROCESS      ]
                          |
                    [ MAIN LOOP ]
                    [ (1/60sec) ]
                          |             ___ S19
                    ( DISPLAY ) <-----------------------------
                    ( PROCESS )                               |
                          |  ___ S20                          |  ___ S22
                    [ SENSOR OUTPUT READ ]    [ NEUTRAL POSITION SET ]
                    [      PROCESS        ]    [       PROCESS        ]
                          |  ___ S21                          |
                    / NEUTRAL POSITION \  Yes                 |
                    \ SET REQUEST ?    / --------------------->
                          |  No
                          | Yes  ___ S23
                    / IMPACT INPUT FLAG ON? \  Yes           ___ S24
                    \                       / ----> / UNDERWATER ? \
                          |  No                     \             /
                          | <------------- No -----------|  Yes
                          |                         [ PRODUCE WAVES ]  ___ S25
                          | <-----------------------------|
                    [ OBJECTS MOVING ]  ___ S26
                    [    PROCESS     ]
                          |
                    [ COLLISION PROCESS ]  ___ S27
                          |
                    [ SCREEN SCROLL ]  ___ S29
                    [    PROCESS    ]
                          |
                    [ MAIN LOOP END ]
                          |
                    ( GAME END )
```

FIG. 28

OG SET
PROCESS

POSITION HORIZONTAL TOOTH
GROUND AND PRESS
OPERATION SWITCH — S121

OPERATION SWITCH
INPUT PROCESS — S122

KEY DEPRESSED? — S123   No

Yes

ALERT
SOUND — S125   Yes   Z-AXIS
CONTACT SWITCH ON? — S124

No

STORE ACCELERATION SENSOR
OUTPUT VALUES TO OG
POSITION DATA AREA OF
BACKUP RAM 35 — S126

RETURN

FIG. 29

```
           ( NEUTRAL POSITION )
           (   SET PROCESS    )
                   │
                   ▼
        ┌─────────────────────┐
        │ POSITION AT ANGLE   │── S141
        │ EASY TO PLAY AND    │
        │ PRESS OPERATION     │
        │ SWITCH              │
        └─────────────────────┘
                   │
                   ▼
        ┌─────────────────────┐── S142
        │ OPERATION SWITCH    │◄──┐
        │  INPUT PROCESS      │   │
        └─────────────────────┘   │
                   │              │ No
                   ▼              │
               ╱───────╲          │
              ╱ SWITCH  ╲─────────┘
              ╲DEPRESSED?╱
               ╲───────╱── S143
                   │
                  Yes
                   │
                   ▼
        ┌─────────────────────────────┐── S144
        │ SUBTRACT OG POSITION DATA FROM│
        │ ACCELERATION SENSOR OUTPUT   │
        │           VALUE              │
        └─────────────────────────────┘
                   │
                   ▼
        ┌─────────────────────────────┐
        │ STORE VALUE CALCULATED IN STEP│── S145
        │ S144 AND Z-AXIS CONTACT SWITCH│
        │ OUTPUT VALUE TO NEUTRAL      │
        │ POSITION DATA AREA 26a       │
        └─────────────────────────────┘
                   │
                   ▼
               ( RETURN )
```

FIG. 30

```
            ( GAME MAP SELECT )
            (     PROCESS     )
                    │
                    ▼
        ┌───────────────────────┐ ── S171
        │  INITIALIZE CAMERA    │
        │  COORDINATES (Cx, Cy) │
        └───────────────────────┘
                    │
                    ▼
        ╭───────────────────────╮ ── S172
        │ DISPLAY MAP FOR SELECTING │
        │ GAME MAP BASED UPON CAMERA │
        │      COORDINATES       │
        ╰───────────────────────╯
                    │
                    ▼
        ┌───────────────────────┐ ── S173
        ‖  SENSOR OUTPUT READ   ‖
        ‖      PROCESS          ‖
        └───────────────────────┘
                    │
                    ▼
```

```
┌─────────────────────────────────────┐
│ REFER TO CONVERSION TABLE (FOR GAME  │
│ MAP SELECT PROCESS)                  │
│  ┌─────────────────────────────────┐ │
│  │ TWICE SENSOR OUTPUT VALUE X (INx)│ │ ── S174
│  │ IS ADDED TO CAMERA COORDINATE (Cx)│ │
│  └─────────────────────────────────┘ │
│  ┌─────────────────────────────────┐ │
│  │ TWICE SENSOR OUTPUT VALUE (INy) IS│ │
│  │ ADDED TO CAMERA COORDINATE (Cy)  │ │
│  └─────────────────────────────────┘ │
└─────────────────────────────────────┘
```

S175

OUTSIDE OF MAP FOR GAME MAP SELECTION? — Yes → S176 CORRECT TO DISPLAY END REGION OF MAP FOR GAME MAP SELECTION

No

S177 Z-AXIS CONTACT SWITCH ON? No →

Yes

S178 MAP ICON IN DISPLAY? No → ALERT SOUND S179

Yes

STORE GAME MAP NUMBER OF SELECTED COURSE INTO GAME MAP NUMBER (MN) — S181

(RETURN)

FIG. 31

```
      ┌─────────────────┐
      │  SENSOR OUTPUT  │
      │  READ PROCESS   │
      └─────────────────┘
               │
               ▼
      ┌─────────────────────┐
      │   READ LATCH DATA OF │ ─── S201
      │  INTERFACE CIRCUIT 33│
      └─────────────────────┘
               │
               ▼
   ┌──────────────────────────────────┐
   │ READ ACCELERATION SENSOR OUTPUT VALUE │ ─ S202
   │ (INx, INy) AND Z-AXIS CONTACT SWITCH  │
   │ OUTPUT VALUE (INz) FORM LATCH DATA,   │
   │ AND STORE SAME TO ACCELERATION SENSOR │
   │   OUTPUT VALUE MEMORY AREA 26b        │
   └──────────────────────────────────┘
               │
               ▼
           ╱╲          S203
          ╱  ╲
         ╱IMPACT╲      No
        ╱ INPUT? ╲ ──────────┐
         ╲      ╱             │
          ╲    ╱              │
           ╲  ╱               │
            ╲╱                │
          Yes  S204           S205
            │                 │
            ▼                 ▼
   ┌──────────────┐   ┌──────────────┐
   │ ON IMPACT INPUT │ │ OFF IMPACT INPUT│
   │   FLAG (Fs)  │   │   FLAG (Fs)  │
   └──────────────┘   └──────────────┘
            │                 │
            │◄────────────────┘
            ▼
   ┌──────────────────────┐
   │  SUBTRACT OG POSITION DATA │ ─ S206
   │    IN BACKUP RAM FROM      │
   │ ACCELERATION SENSOR OUTPUT │
   │   VALUE MEMORY AREA 26b    │
   └──────────────────────┘
            │
            ▼
   ┌──────────────────────────┐
   │ FURTHER CORRECT WITH NEUTRAL POSITION │ ─ S207
   │ DATA, AND STORE AS INx, INy AND INz   │
   │ INTO ACCELERATION SENSOR OUTPUT VALUE │
   │        MEMORY AREA 26b                │
   └──────────────────────────┘
            │
            ▼
        ┌────────┐
        │ RETURN │
        └────────┘
```

FIG. 32

OBJECT MOVING
PROCESS

PLAYER CHARACTER
MOVING PROCESS — S261

NPC PROCESS
LOOP

NPC MOVING
PROCESS — S262

NPC PROCESS
LOOP END

RETURN

FIG. 33

PLAYER CHARACTER
MOVING PROCESS

COPY CURRENT COORDINATES
AS LAST-TIME COORDINATES — S31

RENDER CHANGE AMOUNT OF
MOVING ACCELERATION 0 — S32

TILT MOVEMENT
PROCESS — S33

IMPACT MOVEMENT
PROCESS — S34

JUMP PROCESS — S35

WAVES
PRODUCED? — S36   Yes

No   WAVE MOVEMENT
                  PROCESS — S37

CALCULATE MOVING
ACCELERATION AND VELOCITY — S38

CALCULATE
COORDINATES — S39

RETURN

FIG. 34

NPC MOVING
PROCESS

COPY CURRENT COORDINATES AS
LAST-TIME COORDINATES — S41

RENDER CHANGE AMOUNT OF
MOVING ACCELERATION 0 — S42

SELF-CONTROLLED
MOVEMENT — S43

TILT MOVEMENT
PROCESS — S44

IMPACT MOVING
PROCESS — S45

WAVES
PRODUCED? — S46

Yes

WAVE MOVEMENT
PROCESS — S47

No

CALCULATE MOVING
ACCELERATION AND VELOCITY — S48

CALCULATE
COORDINATES — S49

Z-AXIS CONTACT
SWITCH OUTPUT VALUE 1? — S51

Yes

POSITION
INVERSION — S52

No

RETURN

FIG. 35

JUMP PROCESS

S351

Z-AXIS
CONTACT SWITCH
OUTPUT VALUE 1?

No

S354

Yes

CURRENT POSITION
STATUS "IN-AIR"?

Yes

S352

RENDER CURRENT POSITION
STATUS "IN-AIR"

No

S355

RENDER CHANGE
AMOUNT OF Z-AXIS
MOVING
ACCELERATION -1

S353

RENDER CHANGE AMOUNT OF Z-
AXIS MOVING ACCELERATION -1

RETURN

RETURN

FIG. 36

WAVE MOVEMENT
PROCESS

READ CURRENT
POSITION STATUS

S361

S362

AFFECTED POSITION
BY WAVES?

No

S363

Yes

ADD CHANGE AMOUNTS OF Z-AXIS
AND Y-AXIS MOVING ACCELERATION
DUE TO AFFECTION OF WAVES TO
EACH OTHER

RETURN

FIG. 37

COLLISION
PROCESS

NPC COLLISION
DETERMINATION
LOOP

S271

COLLISION WITH WALL? —Yes→

No

S272

COLLISION
WITH OTHER NPC? —Yes→

No

S275

S273

GENERATE COLLISION
SOUND

DETECT CURRENT
POSITION STATUS

S274

RETURN NPC COORDINATES
TO LAST-TIME
COORDINATES

NPC COLLISION
DETERMINATION
LOOP END

S276

PLAYER CHARACTER
COLLIDED WITH WALL? —Yes→

No

S277

COLLISION SOUND

S278

RETURN PLAYER CHARACTER COORDINATES
TO LAST-TIME COORDINATES

DETECT CURRENT
POSITION STATUS S279

S281

PLAYER CHARACTER
COLLIDED WITH NPC? —Yes→

No

S282

VANISH NPC

S283

No ← NPCs ALL VANISHED?

Yes

S284

GAME CLEAR PROCESS

S285

PLAYER CHARACTER
FALLEN IN HOLE? —Yes→

No

S286

GAME OVER PROCESS

RETURN

FIG. 38

FIG. 39

FIG. 40

```
            ( SCREEN SCROLL )
            (   PROCESS     )
                   |
                   v
S291   PLAYER CHARACTER IS OUT OF SCROLL ──Yes──> S292  LEFT END OF
       AREA IN X-AXIS MINUS DIRECTION?                  ENTIRE GAME MAP?
                 No                           Yes         |No
                                                          v
                                        S293  DECREASE SCROLL COUNTER X
                                              COORDINATE (SCx) BY GIVEN
                                              AMOUNT
                   |
                   v
S294   PLAYER CHARACTER IS OUT OF SCROLL ──Yes──> S295  RIGHT END OF
       AREA IN X-AXIS PLUS DIRECTION?                    ENTIRE GAME MAP?
                 No                           Yes         |No
                                                          v
                                        S296  INCREASE SCROLL COUNTER X
                                              COORDINATE (SCx) BY GIVEN
                                              AMOUNT
                   |
                   v
S297   PLAYER CHARACTER IS OUT OF SCROLL ──Yes──> S298  UPPER END OF
       AREA IN Y-AXIS MINUS DIRECTION?                   ENTIRE GAME MAP?
                 No                           Yes         |No
                                                          v
                                        S299  DECREASE SCROLL COUNTER Y
                                              COORDINATE (SCy) BY GIVEN
                                              AMOUNT
                   |
                   v
S301   PLAYER CHARACTER IS OUT OF SCROLL ──Yes──> S302  LOWER END OF
       AREA IN Y-AXIS PLUS DIRECTION?                    ENTIRE GAME MAP?
                 No                           Yes         |No
                                                          v
                                        S303  INCREASE SCROLL COUNTER Y
                                              COORDINATE (SCy) BY GIVEN
                                              AMOUNT
                   |
                   v
              ( RETURN )
```

FIG. 41

(a)

(b)

(c)

FIG. 42

FIG. 43

(a)

82a   82b   82c   82d

81a

81b

82e   82f   82g   82h

82i   82j   82k   82l

81c

(b)

82a   82b   82c   82d

81a

81b

82e   82f   82g   82h

82i   82j   82k   82l

81c

(c)

82a   82b   82c   82d

81a

81b

82e   82f   82g   82h

82i   82j   82k   82l

81c

FIG. 44

(a)

(b)

FIG. 45

PROGRAM ROM

OBJECT CHARACTER DATA	342a
MAP DATA	342b

DATA OF UPHEAVAL POINT IN LAND

COORDINATE OF UPHEAVAL POINT 1 (PX1,Py1)	
COORDINATE OF UPHEAVAL POINT 2 (PX2,Py2)	342c
COORDINATE OF UPHEAVAL POINT 3 (Px3,Py3)	
. . .	
COORDINATE OF UPHEAVAL POINT 12 (Px12,Py12)	

LIMIT VALUES OF SCROLL
(SCxmax, SCymax) — 342d

ACCELERATION SENSOR OUTPUT VALUE CONVERSION TABLE — 342e
(FOR MOVING VIEW IN LAND UPHEAVAL GAME)

GAME PROGRAM

MAIN PROGRAM
SENSOR OUTPUT READ PROGRAM
VIEW MOVEMENT PROGRAM
LAND UPHEAVAL PROGRAM
TEMPERATURE INCREASE PROGRAM
TORTOISE CONTROL PROGRAM
OTHER PROGRAMS

342f

FIG. 46

WORK RAM

ACCELERATION SENSOR OUTPUT VALUES

| SENSOR OUTPUT VALUE X (INx) |
| SENSOR OUTPUT VALUE Y (INy) |
| Z-AXIS CONTACT SWITCH OUTPUT VALUE (INz) |

— 262a

IMPACT INPUT FLAG

| IMPACT INPUT FLAG (Fs) |

— 262b

LAND UPHEAVAL DATA

| HEIGHT OF UPHEAVAL POINT 1 (H1) |
| HEIGHT OF UPHEAVAL POINT 2 (H2) |
| HEIGHT OF UPHEAVAL POINT 3 (H3) |
| ... |
| HEIGHT OF UPHEAVAL POINT 12 (H12) |

— 262c

TEMPERATURE

| TEMPERATURE (T) |

— 262d

TORTOISE CHARACTER DATA

TORTOISE CHARACTER 1

| X COORDINATE (X1) |
| Y COORDINATE (Y1) |

| LAST-TIME X COORDINATE (Px1) |
| LAST-TIME Y COORDINATE (Py1) |

TORTOISE CHARACTER 2

TORTOISE CHARACTER 3

...

TORTOISE CHARACTER m

— 262e

FIG. 47

START

↓

SENSOR OUTPUT READ PROCESS ⟋ S61

↓

VIEW MOVEMENT PROCESS ⟋ S62

↓

LAND UPHEAVAL PROCESS ⟋ S63

↓

TEMPERATURE INCREASE PROCESS ⟋ S64

↓

CHARACTER CONTROL PROCESS ⟋ S65

↓

DISPLAY PROCESS ⟋ S66

↓

GAME OVER? ⟋ S67

No → (loops back)

Yes ↓

END

FIG. 48

VIEW MOVEMENT
PROCESS

REFER TO CONVERSION TABLE (FOR LAND
UPHEAVAL GAME)

CHANGE SCROLL COUNTER X
COORDINATE (SCx) BASE UPON
SENSOR OUTPUT VALUE X(INx)   S621

CHANGE SCROLL COUNTER Y
COORDINATE (SCy) BASE UPON
SENSOR OUTPUT VALUE Y(INy)

S622

SCx > SCxmax?   Yes

No   SCx = SCxmax   S623

S624

SCx < 0?   Yes

No   SCx = 0   S625

S626

SCy > SCymax?   Yes

No   SCy = SCymax   S627

S628

SCy < 0?   Yes

No   SCy = 0   S629

RETURN

FIG. 49

```
           ┌─────────────────────┐
           │   LAND UPHEAVAL      │
           │     PROCESS          │
           └──────────┬──────────┘
                      │                    S631
              ╱───────▼───────╲
             ╱  OUTPUT OF Z-AXIS ╲    No
            ╱   CONTACT SWITCH?   ╲─────────────────────────────────┐
             ╲                   ╱                                   │
              ╲───────┬───────╱                                      │
                   Yes │                                             │
                       │                    S632                     │
              ╱────────▼──────╲                                      │
             ╱                  ╲      No                            │
            ╱ A BUTTON DEPRESSED? ╲──────────────┐                   │
             ╲                   ╱                │                   │
              ╲────────┬───────╱                  │                   │
                   Yes │                          │                   │
                       │              S634        │                   │
                       │         ╱─────▼─────╲    No                  │
                       │        ╱ B BUTTON     ╲──────────┐           │
                       │       ╱  DEPRESSED?    ╲          │           │
                       │  S633  ╲              ╱  S635    │  S636     │
                       │         ╲────┬──────╱            │           │
                       │          Yes │                   │           │
          ┌────────────▼──┐  ┌────────▼───────┐  ┌────────▼────────┐
          │ INCREASE HEIGHT│  │INCREASE HEIGHT │  │INCREASE HEIGHT  │
          │ OF UPHEAVAL    │  │OF UPHEAVAL     │  │OF ALL UPHEAVAL  │
          │ POINTS IN      │  │POINTS OUT OF   │  │POINTS BY 1      │
          │ DISPLAY AREA   │  │DISPLAY AREA    │  │                 │
          │ BY 1           │  │BY 1            │  │                 │
          └───────┬────────┘  └───────┬────────┘  └───────┬────────┘
                  │◄─────────────────┘                    │
                  │◄──────────────────────────────────────┘
                  │
              ┌───▼────┐
              │ RETURN │
              └────────┘
```

FIG. 50

FIG. 51

(a)

(b)

(c)

FIG. 52

(a)

(b)

(c)

(d)

FIG. 53

(a)

(b)

(c)

FIG. 54

WORK RAM

ACCELERATION SENSOR OUTPUT VALUES

| SENSOR OUTPUT VALUE X (INx) |
| SENSOR OUTPUT VALUE Y (INy) |
| Z-AXIS CONTACT SWITCH OUTPUT VALUE (INz) |

263a

IMPACT INPUT FLAG

| IMPACT INPUT FLAG (Fs) |

263b

EGG DATA

| X COORDINATE (Ex) |
| Y COORDINATE (Ey) |
| HEIGHT (Eh) |
| FIRE (Ef) |

263c

CABBAGE DATA

| X COORDINATE (CAx) |
| Y COORDINATE (CAy) |
| CUT (CAc) |

263d

FIG. 55

START

SENSOR OUTPUT READ PROCESS — S71

S72
A BUTTON DEPRESSED? — Yes

No

S74
B BUTTON DEPRESSED? — Yes

No

S75
FRYPAN SPACE PROCESS

S73
KITCHEN KNIFE SPACE PROCESS

S76
GAME OVER?

No

Yes

END

FIG. 56

```
      ┌─────────────────────┐
      │    FRYPAN SPACE      │
      │     PROCESS          │
      └─────────────────────┘
                 │
                 ▼
┌──────────────────────────────────────────┐  ┌─ S771
│  REFER TO CONVERSION TABLE (FOR FRYPAN)   │
│ ┌────────────────────────────────────────┐│
│ │ CHANGE EGG X COORDINATE (Ex) BASE UPON ││
│ │    SENSOR OUTPUT VALUE (INx)           ││
│ ├────────────────────────────────────────┤│
│ │ CHANGE EGG Y COORDINATE (Ey) BASE UPON ││
│ │    SENSOR OUTPUT VALUE (INy)           ││
│ └────────────────────────────────────────┘│
└──────────────────────────────────────────┘
                 │
                 ▼
      ┌─────────────────────┐  ┌─ S772
      │ │ EGG JUMP PROCESS │ │
      └─────────────────────┘
                 │
                 ▼                S773
      ┌─────────────────────┐  ┌─
      │ INCREASE FIRE (Ef) BY 1 │
      └─────────────────────┘
                 │
                 ▼       S774        S775
              ◇                  ┌──────────────┐
          (Ef)>=100?  ──Yes──▶  │ EGG SUCCESS  │
              ◇                  │  PROCESS     │
                 │               └──────────────┘
                 │No                    │
                 ◀─────────────────────┘
                 ▼
          ┌──────────┐
          │  RETURN  │
          └──────────┘
```

FIG. 57

```
      ┌─────────────────────┐
      │   KITCHEN KNIFE      │
      │   SPACE PROCESS      │
      └─────────────────────┘
                 │
                 ▼
┌──────────────────────────────────────────────┐  ┌─ S741
│ REFER TO CONVERSION TABLE (FOR KITCHEN KNIFE) │
│ ┌──────────────────────────────────────────┐ │
│ │ CHANGE CABBAGE X COORDINATE (CAx) BASE   │ │
│ │    UPON SENSOR OUTPUT VALUE (INx)        │ │
│ ├──────────────────────────────────────────┤ │
│ │ CHANGE CABBAGE Y COORDINATE (CAy) BASE   │ │
│ │    UPON SENSOR OUTPUT VALUE (INy)        │ │
│ └──────────────────────────────────────────┘ │
└──────────────────────────────────────────────┘
                 │
                 ▼
      ┌─────────────────────┐  ┌─ S742
      │ │ CABBAGE CUT PROCESS │ │
      └─────────────────────┘
                 │
                 ▼       S743        S744
              ◇                  ┌──────────────┐
          (CAc)>=100? ──Yes──▶  │ CABBAGE SUCCESS│
              ◇                  │  PROCESS     │
                 │               └──────────────┘
                 │No                    │
                 ◀─────────────────────┘
                 ▼
          ┌──────────┐
          │  RETURN  │
          └──────────┘
```

FIG. 58

EGG JUMP
PROCESS

S772a

Z-AXIS CONTACT
SWITCH OUTPUT? — No

Yes

DISPLAY EGG JUMP — S772b

RENDER EGG HEIGHT (Eh)= CH — S772c

SENSOR OUTPUT READ
PROCESS — S772d

REFER TO CONVERSION TABLE (FOR
FRYPAN JUMP)

CHANGE EGG X COORDINATE (Ex)
BASED UPON SENSOR OUTPUT VALUE
X (INx) — S772e

CHANGE EGG Y COORDINATE (Ey)
BASED UPON SENSOR OUTPUT VALUE
Y (INy)

DECREASE EGG HEIGHT (Eh) BY
1 — S772f

DISPLAY PROCESS — S772g

S772h

EGG LANDING (Eh=0)? — No

Yes

S772i

EGG LANDING POINT
WITHIN FLYING PAN? — No

Yes   S772j   S772k

JUMP SUCCESS
PROCESS

JUMP FAILURE
PROCESS

RETURN

FIG. 59

CABBAGE CUT
PROCESS

Z-AXIS CONTACT
SWITCH OUTPUT? — No — S742a

Yes

CABBAGE BELOW
KITCHEN KNIFE? — No — S742b

Yes

DISPLAY PROCESS — S742c

INCREASE CABBAGE CUT (CAc)
BY 1 — S742d

RETURN

FIG. 60

FIG. 61

MASTER MACHINE

GAME START

GAME MAP SELECT
PROCESS — S81p

MAP CONFIRMATION
PROCESS — S82p

MAIN LOOP
(1/60sec)

DISPLAY
PROCESS — S83p

OBJECT MOVEMENT
PROCESS — S84p

COLLISION PROCESS — S85p

SCREEN SCROLL
PROCESS — S86p

MAIN LOOP END

GAME END

FIG. 62

SLAVE MACHINE

(GAME START)

GAME MAP SELECT PROCESS — S81c

MAP CONFIRMATION PROCESS — S82c

MAIN LOOP (1/60sec)

DISPLAY PROCESS — S83c

SENSOR OUTPUT READ PROCESS — S84c

TRANSMIT INTERRUPT SIGNAL AND SENSOR OUTPUT VALUES TO MASTER MACHINE — S85c

OBJECTS MOVEMENT PROCESS — S86c

COLLISION PROCESS — S87c

SCREEN SCROLL PROCESS — S88c

MAIN LOOP END

(GAME END)

FIG. 63

MAP CONFIRMATION PROCESS
IN MASTER MACHINE

TRANSMIT MAP NUMBER DATA — S87p1

DATA RECEPTION — S87p2

DATA RECEIVED? — S87p3
No

Yes

MAPS MATCHED? — S87p4
No → RETURN MAP SELECT PROCESS

Yes

RETURN

FIG. 64

MAP CONFIRMATION PROCESS
IN SLAVE MACHINE

DATA RECEPTION — S87c1

DATA RECEIVED? — S87c2
No

TRANSMIT MAP NUMBER DATA — S87c3

Yes

MAPS MATCHED? — S87c4
No → RETURN MAP SELECT PROCESS

Yes

RETURN

FIG. 65

COMMUNICATION INTERRUPT
PROCESS IN MASTER MACHINE

DATA RECEPTION — S91p

SENSOR OUTPUT READ
PROCESS — S92p

COMPOSE ACCELERATION
SENSOR OUTPUT VALUES
AND RECEPTION DATA — S93p

TRANSMIT INTERRUPT SIGNAL
AND COMPOSED DATA TO SLAVE
MACHINE — S94p

RETURN

FIG. 66

COMMUNICATION INTERRUPT
PROCESS IN SLAVE MACHINE

RECEIVE COMPOSED DATA FROM
MASTER MACHINE — S91c

RETURN

FIG. 67

FIG. 68